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Search Results -

Terms	Documents
(increas$6 or maximiz$6 or optimiz$6) same (asset$ or invest$4 or cash$) same (pension or retir$3) same (insur$6 or assur$6) same contract$	10

Database: US Pre-Grant Publication Full-Text Database; US Patents Full-Text Database; US OCR Full-Text Database; EPO Abstracts Database; JPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Search: L5

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Search History

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Set Name side by side	Query	Hit Count	Set Name result set
	DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI,TDBD; PLUR=YES; OP=ADJ		
L5	(increas$6 or maximiz$6 or optimiz$6) same (asset$ or invest$4 or cash$) same (pension or retir$3) same (insur$6 or assur$6) same contract$	10	L5
L4	l1 and (increas$6 or maximiz$6 or optimiz$6) same (asset$ or invest$4 or cash$) same (pension or retir$3) same (insur$6 or assur$6) same contract$	1	L4
	DB=PGPB; PLUR=YES; OP=ADJ		
L3	20030018498	1	L3
L2	20020035489	1	L2
	DB=USPT; PLUR=YES; OP=ADJ		
L1	(4969094 or 5136502 or 5974390).pn.	3	L1

END OF SEARCH HISTORY

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L8: Entry 1 of 1 File: USPT Jan 1, 2002

DOCUMENT-IDENTIFIER: US 6336103 B1
TITLE: Rapid method of analysis for correlation of asset return to future financial liabilities

Brief Summary Text (4):
The "immunization" method of meeting future financial liabilities uses bonds having substantially the same duration as the liability stream. Duration is a measure of volatility expressed in years, which is similar to, but more precise than, average life. The duration is calculated as the weighted average amount of time to the receipt of the payout. There are however significant drawbacks to "immunization", with one primary disadvantage being the relatively low excess return on assets generally achieved by the method. Additional limitations are imposed by the two major assumptions made by the strategy: The yield curve (a plot of yield to maturity on bonds versus their time to maturity) will only make parallel shifts. Consequently, regardless of maturity, when market conditions change, all bonds allegedly move exactly the same amount in yield. This clearly is not the case since there have been substantial inconsistencies in the past for the difference in rates for short-term bonds and long-term bonds. Secondly, all cash flows in excess of required annual payments can allegedly be reinvested at the yield to maturity of the portfolio. This presumption is also clearly not true since sharply declining or rising interest rate environments will make it extremely difficult to carry out reinvestment. Furthermore, this strategy does require more ongoing management of the portfolio in order to sell or buy more securities to match the actuarial schedule and maintain a proper asset/liability match.

Brief Summary Text (6):
Pension plan liabilities or other future liabilities, such as are present in the insurance industry, are long term in nature. Therefore, a future liability stream can greatly benefit from the compounding effect of investment in higher returning assets, such as common stocks. However, attempts to characterize stocks in terms of a time duration parameter or otherwise have not been successful. In the last few years many unsuccessful attempts have been made to develop a system whereby a portfolio of equities is linearly optimized relative to a liability stream. There have been attempts to parallel the "cash matching" techniques with the use of stocks, instead of bonds. This approach has involved matching the expected dividend flow of the portfolio to the liability stream. Unfortunately, stock dividend yields are unpredictable, particularly beyond 3 years in the future. Another major effort in equities has been directed to an "immunization" type treatment. In this effort an attempt was made to calculate the duration of stocks on an individual basis, as well as on a portfolio basis; but these attempts also have been unsuccessful, primarily due to the long term unpredictability of stock dividends.

Detailed Description Text (2):
Broadly stated, a method and system are described for selecting a portfolio of assets and correlating a future asset return of the portfolio to a financial index, such as, a liability index, an inflation index, or any other accepted index and mixtures thereof. Specific examples of indices are liability indices, such as, individual corporate pension plan liabilities and insurance company liabilities.

The consumer price index and wage growth index are examples of an inflation index, and other indices can include accepted stock price indices and futures markets indices. The method includes selecting asset portfolios which optimally correlate portfolio returns to the future desired payouts or payments needed over time to fulfill the desired financial objective. In the general case the user selects a standard index to which optimum correlation is desired for the selected portfolio having a future asset return over time. The process of selecting the standard index can involve obtaining input (such as actuarial) in terms of the characteristics of future cash payments discounted to present value based on a range of discount rate and wage (inflation) values. This information can be used to construct a functional behavior for the present value of the liability. A decision is then made, such as by a company pension fund manager, that certain discount rates and inflation assumptions should be made. On this basis the current liabilities are projected back in time using these assumptions and a plurality of assets are examined to determine their sensitivity to the past behavior of the liability returns. In the most general sense if one can determine an index to which a portfolio of assets has a strong correlation, this sensitivity can be used to select a set of assets which will match the behavior of the index as it changes over time. As a particular example an actuary can provide specific ranges of present value liability for a range of discount rates and inflation rates. The change over time of the liability from month to month over a twenty four month period can yield a liability return. The analysis to be described in more detail hereinafter determines which selected ones of a plurality of assets track the liability returns with best correlation. The resulting weighted set of assets form the portfolio to follow the future liability returns. An analysis using the selected standard index can be performed on a plurality of assets, such as, for example, at least one of the following categories of assets: stock securities, real estate investments, futures contracts, options, commodities, currencies and precious metals. The analysis allows the identification of the combination of weight percentages of selected ones of the plurality of assets yielding the optimum correlation of the future asset return to the standard index. Optimum correlation is thus achieved by calculating a minimum standard deviation or a variance for the difference between the return of the portfolio of assets and the selected standard index return. This method and system are particularly applicable for, but not limited to, the insurance industry and management of pension fund liabilities.

Detailed Description Text (3):

FIGS. 1A and 1B illustrate in functional flow charts the procedures followed in carrying out two forms of the invention. In the first method shown in FIG. 1A (and described previously in pending application having U.S. Ser. No. 281,560, now abandoned) the correlation of the expected asset return of a portfolio to a standard index one is initiated by input of various basic information. This information includes, for example, establishing the fundamental statistical characteristics of liability returns, and future payment schedules for matching a desired index, such as the future stream of financial liabilities of a pension plan. As described hereinbefore, the future payment schedule for a pension plan can be determined by using actuarial data. These future liabilities can be characterized in terms of an accumulated benefit obligation (ABO), that is, the price you would have to pay if the liabilities were sold at a selected time. The total outlay required to pay retirement wages for the pension plan are discounted back to the present value at the market rate interest (currently 10%). Other related characterizations can be used, such as a projected benefit obligation (PBO), by accounting for inflation in the growth of wages at retirement. This amount is converted to a percentage and an expected salary at retirement, discounted to present value. Therefore, although the ABO is affected primarily by interest rates, additional standard measures, such as the PBO, account for inflation. Therefore, the method is also generally effective for calculating the convolution of complex effects with one another. The method only requires optimizing correlation of the time behavioral performance of future asset return relative to the particular standard index, which includes any conceivable selected

characteristic which assets are found to be sensitive to.

Detailed Description Text (38):
The objective function can be defined in a number of ways. The computer program allows monthly or moving quarterly returns to be used for optimization. Transaction costs can be considered and their importance magnified or reduced relative to other objectives. With minor changes, other such goals can be incorporated into the objective function. The key is that once the objective function is specified, partial derivatives can be used to guide the search for an optimal portfolio. Any example of a preference that can be created is an increased weighting for a stock with a likely dividend versus one with no dividend.

Detailed Description Text (75):
In another embodiment, a portfolio of assets can be constructed by selecting a portion of a total portfolio with assets having optimal correlation of asset return to a liability or financial index. The remainder of the portfolio comprises futures contracts which are combined with the correlated portfolio portion to achieve in effect an optimum correlation for the entire portfolio of assets. Further details are set forth in Appendix IV.

Detailed Description Text (76):
In another aspect of one embodiment, control can be exerted over pension plan surplus by adjusting the level of risk selected for a portfolio of assets. As illustrated in FIG. 6, the expected return can be selected at various levels with the degree of risk, or standard deviation of the funding level, generally increasing as one moves from a position of minimum risk at the top of the "bullet" to higher future returns. Control over a pension plan surplus, or for that matter any plan for which you wish to respond dynamically to control risk/return in concert, can be accomplished over a wide range of risk and return values. Such an approach can be used to manage return under variable risk positions and minimize insurance costs for protecting against underfunding of a plan, such as falling below a predetermined minimum floor. Consequently, as the funding level approaches 100% a minimum risk portfolio of assets should be constructed using the methods described hereinbefore. As the surplus accumulates, the acceptable risk level can be increased for the portfolio of assets by dynamic modification of the portfolio asset components. One can utilize futures contracts as an overlay for an underlying portfolio of assets, having been selected by the basic invention described previously, to create in effect an optimum statistical correlation for the entire portfolio, including the futures contracts. As the surplus approaches 10%-20% excess, a portfolio of assets can be constructed resulting in a much higher level of future return. For example, in FIG. 6, the change in future return from minimum risk to the highest return data point is about a 35% greater return but with an accompanying 70%-80% increase in standard deviation compared to the minimum risk point.

Detailed Description Text (85):
As an example, an investor who has a preference for securities with high dividend yields will specify an objective function which explicitly states the trade off between portfolio tracking and dividend income. The computer routine to optimize a portfolio (the optimizer) will extract the partial derivatives of this objective function and proceed to select an optimal portfolio which exactly incorporates the specified trade-off between dividend income and tracking. This investor then has a custom solution which addresses his particular concerns and requirements.

CLAIMS:

6. A computer for managing an insurance plan's portfolio of assets, comprising:

computer hardware means for numeric processing;

said numeric processing being performed by manipulation and recognition of electrical signals having two voltage levels associated with binary signal processing;

said numeric processing performed by said computer hardware means having:

(a) means for generating said electrical signals to ascertain a standard actuarial index in terms of characteristic future cash payments discounted to present value based on a range for at least one of discount rate values and wage inflation values;

(b) means for generating said electrical signals to ascertain the past behavior of current insurance plan liabilities projected backwards in time;

(c) means for generating said electrical signals to determine a particular portfolio of equity stocks having an optimized combination of risk and financial return for tracking said standard actuarial index having:

(1) means for performing computer programming commands for selecting a starting portfolio of equity stocks, said commands thereby causing generation of said electrical signals in said computer hardware means;

(2) means for performing computer programming commands for making a plurality of incremental changes in weight percentages of at least some of said starting portfolio of equity stocks;

(3) means for performing computer programming commands for determining a correlation of the past behavior of said insurance plan liabilities with said financial return of said incrementally changed portfolio of equity stocks over the same time period as said past insurance plan liabilities; and

(4) means for performing computer programming commands for reaccessing (2) and (3) until reaching said particular portfolio of assets having said optimized correlation with said standard index thereby generating electrical output signals characteristic of said particular portfolio of assets.

11. Apparatus for producing a portfolio of equity stocks for pension plan management, wherein said apparatus provides an electrical output signal subsequent to processing an electrical input signal, said apparatus comprising:

electrical processing means for processing the electrical input signal;

memory means for storing information relating to the electrical input signal being coupled to said processing means;

said processing of the electrical input signal by said electrical processing means being controlled in part by:

(a) means for performing computer programming commands generating electrical signals in said apparatus by ascertaining and storing in said memory means a standard actuarial index in terms of characteristic future cash payments discounted to present value based on a range for at least one of discount rate values and wage inflation values;

(b) means for performing computer programming commands generating electrical signals in said apparatus by ascertaining the past behavior of current pension plan liabilities projected backwards in time;

(c) means for performing computer programming commands generating electrical signals in said apparatus by determining a particular portfolio of equity stocks

having an optimized combination of risk and financial return for tracking said standard actuarial index having:

(1) means for selecting a starting portfolio of equity stocks and storing electrical signals relating to said equity stocks in said memory means;

(2) means for making a plurality of incremental changes in weight percentages of at least some of said starting portfolio of equity stocks;

(3) means for determining a correlation of the past behavior of said pension plan liabilities with said financial return of said incrementally changed portfolio of equity stocks over the same time period as said past pension plan liabilities;

(4) means for reaccessing (2) and (3) until reaching said particular portfolio of assets having said optimized correlation with said standard index; and

(5) means for converting information relating to said portfolio of stocks to said electrical output signal in said memory means.

Previous Doc Next Doc Go to Doc#

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Your result set for the last L# is incomplete.

The probable cause is use of unlimited truncation. Revise your search strategy to use limited truncation.

Search Results -

Terms	Documents
L7 and (determin$3 or generat$6)same actuar$ same value$	1

Database:
US Pre-Grant Publication Full-Text Database
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EPO Abstracts Database
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Derwent World Patents Index
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Search: L8

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L8	L7 and (determin$3 or generat$6)same actuar$ same value$	1	L8
L7	L6 and (portion or part$ or divid$3) same (total$3 or compound$3 or comput$3)	9	L7
L6	L5 and(period$6 or tim$3) same (payment or pay$6)	10	L6
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L2	20020035489	1	L2

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DB=USPT; PLUR=YES; OP=ADJ

L1 (4969094 or 5136502 or 5974390).pn. 3 L1

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